

LISTING OF CLAIMS

The following listing of claims will replace all prior versions, and listings of claims, in the present application.

Claim 1 (Currently amended) A structure for interconnecting semiconductor components comprising:

a layered substrate for transferring, said layered substrate including a semiconductor substrate, a device layer located directly on an upper surface of said semiconductor substrate, and an interconnect layer abutting an upper surface of said device layer, said interconnect layer including a blanket layer of a metallic element or a patterned metallic element having portions comprised of an insulating material to provide a patterned wiring level including at least one metallic component embedded within an insulating material;

a bi-layer capping coating on top of the layered substrate, each layer of said coating provides adhesion and protection, said bi-layer capping coating comprising a first layer of silicon nitride abutting an upper surface of said interconnect layer, said first layer of silicon nitride is ~~non-patterned~~ at least one of a diffusion barrier layer, a passivation layer, or a protection layer, and a second layer of an amino silane atop said first layer of silicon nitride, said layer of silicon nitride caps said ~~at least one metallic component~~ blanket layer of the metallic element or the patterned metallic element; and

a carrier assembly located atop said bi-layer capping coating.

Claim 2 (Previously presented) The structure according to claim 1 wherein said layered substrate contains at least one semiconductor component.

Claim 3 (Previously presented) The structure according to claim 2 wherein said at least one semiconductor component is selected from the group consisting of semiconductor devices, semiconductor circuits, thin-film layers, passive and/or active elements, interconnecting elements, memory elements, micro-electro-mechanical elements, optical elements, optoelectronic elements, and photonic elements.

Claim 4 (Original) The structure according to claim 1 wherein said carrier assembly comprises a carrier wafer, an adhesive layer and an intermediate layer.

Claim 5 (Original) The structure according to claim 1 wherein said carrier assembly comprises glass and an intermediate layer of polyimide.

Claim 6 (Original) The structure according to claim 4 wherein said carrier wafer is selected from the group consisting of silicon, silicon-on-insulator, silicon germanium-on-insulator, alumina, quartz, group III-V or II-VI semiconductor wafers, and ceramics.

Claim 7 (Cancelled).

Claim 8 (Cancelled).

Claim 9 (Currently amended) The structure according to claim 1 wherein said blanket layer of the metallic component element or the patterned metallic element is comprised of a material selected from the group consisting Ti, Ta, Zr, Hf, their silicides nitrides and their conducting siliconitrides; Cu, Al, composites of these materials with glass; and combinations thereof.

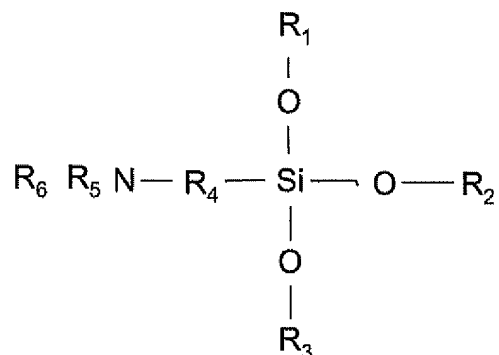
Claim 10 (Currently amended) The structure according to claim 1 wherein said bi-layer capping coating provides passivation to the blanket layer of the metallic component element or the patterned metallic element.

Claim 11 (Currently amended) The structure according to claim 1 wherein said first layer serves as [[a]] said diffusion barrier layer, while providing adhesion to the layered substrate; and said second layer provides adhesion to the carrier assembly and is an additional diffusion limiting layer.

Claim 12 (Cancelled).

Claim 13 (Previously presented) The structure according to claim 11 wherein said second layer is an adhesion promoter to an intermediate layer.

Claim 14 (Previously presented) The structure according to claim 1 wherein said amino silane is a compound of the formula:



wherein R₁, R₂, R₃, R₅ and R₆ are, independently of each other, hydrogen, a lower alkyl radical containing from 1 to about 6 carbon atoms, an acyl radical containing 1 to 6 carbon atoms, or an allyl, alkylene or alkynyl radical containing 2 to 6 carbon atoms, and R₄ is a lower alkyl containing from 1 to 6 carbon atoms or an aromatic system.

Claim 15 (Original) The structure according to claim 5 wherein said polyimide material is selected from the group consisting of polyamic acid (PAA)-based polyimides, polyimide ester-based polyimides, and pre-imidized polyimides.

Claim 16 (Previously presented) The structure according to claim 5 wherein said carrier assembly comprises glass and an intermediate layer of polyimide to allow for a further release process.

Claim 17 (Original) The structure according to claim 11 wherein said first layer further serves as protection against a removal process of said carrier assembly.

Claim 18 (Original) The structure according to claim 17 wherein said first layer protects from an oxygen-based plasma removal process.

Claims 19- 32 (Cancelled).